

[54] **MEASURING SYSTEM FOR THE PHARMACOLOGICAL MANIPULATION OF THE COAGULATION MECHANISM IN BLOOD AND FOR THE ELAPSED COAGULATION TIME**

[75] Inventors: **Walter Jacob Braun; John Henry Altshuler**, both of Englewood; **Gerald Lance Schlatter; Robert LeRoy Poland**, both of Boulder, all of Colo.

[73] Assignee: **Hemotec, Inc.**, Englewood, Colo.

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ABSTRACT

A system for determining the coagulation time of blood and components thereof, the amount of anticoagulant to be injected before and during surgery, and the amount of additive required to neutralize the anticoagulated blood during and after surgery. With collected samples of anticoagulated blood inserted into the system coagulation of the blood is accelerated through the controlled injection of a neutralizing additive by a corresponding injection of regulated gas. Failsafe means determine if gas is being injected into the sample and detection means detect the event of coagulation and indicate the elapsed time for coagulation. Before surgery, an anticoagulant is added to the patient's blood in a quantity necessary to avoid coagulation during surgery. The system responsive to the parameters of the patient's sex, height, and weight and/or pump volume and blood volume determines the amount of anticoagulant to be injected. During operation, samples of blood are periodically taken and analyzed to determine additional amounts of anticoagulant or neutralizing additive to inject. To neutralize the anticoagulant by the injection of a suitable additive immediately after surgery, the system determines the strength of the anticoagulant and calculates the amount of additive to be injected. To prevent the possibility of internal bleeding due to a rebound situation after surgery, additional samples of blood are taken and analyzed to calculate the amount of additive to be injected for neutralization.

